

力臻股份有限公司  
LJ DEVICE CO., LTD.

零件規格書 / 承認書  
SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

DESCRIPTION : Linear Vibrator Motor

MODEL : FG0612L09LA

CUSTOMER PART NO : \_\_\_\_\_

**APPROVED SIGNATURES**

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Rev	Date	Description	Designed	Checked	Approved
A	2019/01/11	Release			Maya

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### 1. Applications

This specification provided by LJD is applied to model FG0612  $\phi \times 12 \times 2.8$ T AC linear resonant actuator, which is used for cellular phone and other handy communication tools.

### 2. Storage, Operating Temperature/Humidity Conditions

No.	Item	Condition
2-1	Operating Temperature Range	-20 °C ~ +70 °C
2-2	Storage Temperature Range	-40 °C ~ +85 °C

### 3. Measurement Conditions, Input Voltage

No.	Item	Condition
3-1	Temperature	20 ± 5 °C
3-2	Humidity	65 ± 20%RH
3-3	Rated Input Voltage	2.0 ± 0.05 Vrms AC, Sinewave
3-4	Input Voltage Range	0.1 ~ 2.05 Vrms AC
3-5	Operating Attitude	Refer to Figure

Refer to figure:

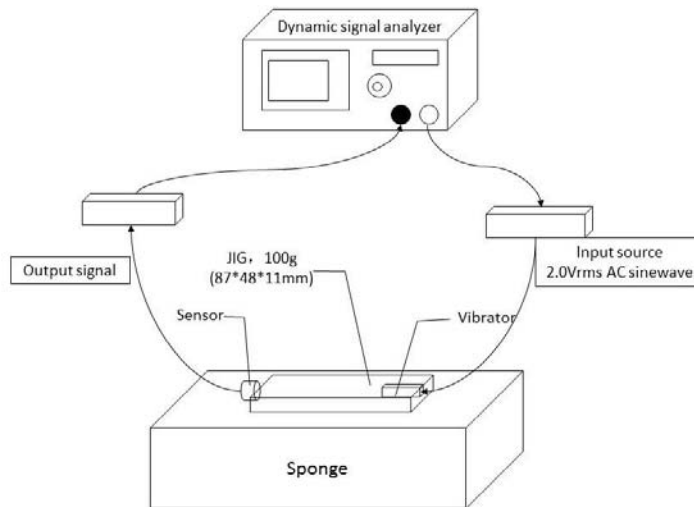


Figure1: An example of measurement method of linear vibrator

Note;

- Dummy Jig (87mm x 48mm x 11mm, 100 Gram) should be put it on the sponge before measurement.

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#### 4. Characteristics

No.	Item	Specifications	Conditions & Remarks
4-1	Motor Length	12±0.1 mm	See appendix 1
4-2	Motor Width	6±0.1 mm	See appendix 1
4-3	Motor Height	2.8±0.05 mm	See appendix 1
4-4	Weight	1.36±0.1 Gram	Motor Ass'y
4-5	Resistance	16±2 Ω	Normal temperature
4-6	Rated Current	Max. 135 mA	Input Source: F0, 2.0Vrms AC, sine wave
4-7	Vibration Acceleration	Min0.65Grms	Input Source: F0, 2.0Vrms AC, sine wave, 100g dummy JIG
4-8	Operating Frequency	205±8 Hz	
4-9	Rising Time	Max. 50 msec	From 0 to 50% of nominal vibration @ 2.0Vrms, F0
4-10	Falling Time	Max. 60 msec	From 100% to 50% of nominal vibration @ 2.0Vrms, F0
4-11	Mechanical Noise	Max. 45 dB(A)	10cm distance from microphone, Input Source :F0,2.0Vrms AC,sine wave
4-12	Insulation Resistance	Min. 10 MΩ	100V DC input, between Case and Lead Wire

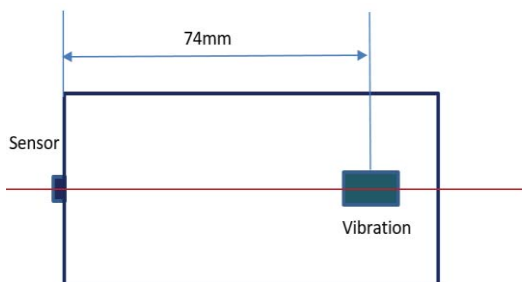


Figure1: Dummy JIG

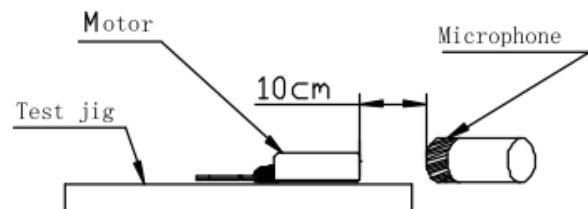


Figure2: Noise measurement condition

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## 5. Reliability test

No.	Test item		Specifications
	Type	Name	
5-1	Mechanical Tests	Repeat random drop test (Tumbler)	.Sample quantity: 10 pcs. DUT power off .Test condition: Drop from 100cm height with a 180g jig to a steel plate. Random drop for 100 times, Rotation speed 10-12 times / min .Reference: IEC60068-2-32
5-2		Mechanical Tests Free fall drop test	.Sample quantity: 10 pcs. DUT power off .Test condition: Drop from 150cm height with a 180g jig to a steel or concrete surface. Each surface three times (2 x 6), total 12 drops. .Reference: IEC60068-2-32
5-3		Micro-drop test	.Sample quantity: 10 pcs. DUT power off .Test condition: The samples should be mounted in a 180 gram fixture, drop 0.1 meter @ 2500 times for two large face, drop 0.1m @ 200 times for the other four faces
5-4	Environmental Tests	High temperature storage test	.Sample quantity: 10 pcs. DUT power off. .Test condition: +80±2°C, 168hours .Reference: IEC60068-2-2 Bb
5-5		Low temperature storage test	.Sample quantity: 10 pcs. DUT power off. .Test condition: -40±2°C, 168hours .Reference: IEC60068-2-1 Ab
5-6		Thermal shock test	.Sample quantity: 10 pcs. DUT power off. .Test condition: -40°C/30 min<---> +70°C/ 30 min, transition time less than 30 seconds, total 10 cycles .Reference: IEC60068-2-14 Na
5-7		Static humidity test	.Sample quantity: 10 pcs. DUT power off. .Test condition: +55±2°C, 95%RH, 96hours .Reference: IEC 60068-2-78
5-8		Alternating temperature humidity	.Sample quantity: 10 pcs. DUT power off. .Test condition: +25°C/normal humidity --> 25°C/ 95%RH, transition time less than 1 hour, ①. 25°C/ 95%RH --> 55°C/ 95%RH, temperature is raised straight in 3 hours. ②. Keep on 55°C/ 95%RH at 3 hours, ③. 55°C/ 95%RH --> 25°C/ 95%RH, temperature is lowered straight in 3 hours. ④. Keep on 25°C/ 95%RH at 9 hours, ① -④ total 2 cycle.
5-9		Salt mist test	Sample quantity: 10 pcs. DUT power off. +35°C, 5%Nacl, 24 hours
5-10	Accelerated Life	Life test 1 (Alarm mode)	.Sample quantity: 20 pcs. DUT power on (Under 2Vrms AC, Sinewave, 200Hz). .Test condition: 1 s on / 1s off, normal temperature & humidity, total 168 hours
5-11		Life test 2 (Haptic mode)	.Sample quantity: 10 pcs. DUT power on (Under 2Vrms AC, Sinewave, 200Hz). .Test condition: 100ms on / 400ms off, normal temperature & humidity, total 800,000 cycles.

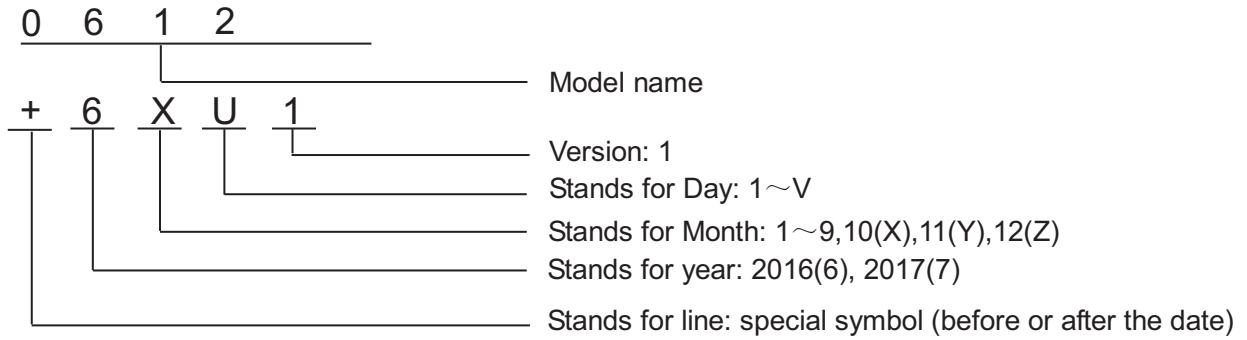
MEASUREMENT: The measurement is conducted after 2 hours of recovery after climatic test.

JUDGEMENT : After test, following specifications must be satisfied.

- . The fluctuation of acceleration and rated current is not over ±30% of its initial value after the test.
- . Noise is not over 55 dB, other parameters must be within specification defined.

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### 6. Lot management



Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Print	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
Day	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Print	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	

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Print	1	2	3	4	5	6	7	8	9	A	B	.....

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## 7. Packing

TBD

## 8. Cautions & Handling

- (1) Do not press the product with more than 0.5 kgf or drop it.  
It can cause the transformation of performance or external appearance.
- (2) Don't use under the following conditions. It may cause a decline in performance.
  - Do not drop into fluid (such as: water, alcohol, etc.)
  - Do not keep at high temperature or high humidity for extended periods of times
  - Do not use near gases which cause erosion
  - Please refrain from operating the vibrator near magnetic devices.
- (3) The vibrator has a strong magnet, so please be aware that it has a magnetic force on the surface of the bracket.
- (4) To optimize the vibration force, rated frequency and voltage could be changed as to assemble condition.
- (5) If any problems occur, both the user and LJ DEVICE CO., LTD. shall try to solve the problem by mutual agreement and on reflection of the specification sheet.



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## Appendix 1 (Outline drawing)

